



**Formerly Used Defense Site
Marion Engineer Depot
Marion, Ohio**

**River Valley School Property
Arsenic Ditch Remediation
Closure Report**

Prepared for

***U.S. Army Corps of Engineers
Louisville District
Louisville, Kentucky***

Total Environmental Restoration Contract
DACW27-97-D-0015 Task Order 0005

April 2000



MONTGOMERY WATSON

April 11, 2000

Mr. Jeffery Steers
Ohio Environmental Protection Agency
Northwest District Office
347 North Dunbridge Rd
Bowling Green, Ohio 43402

Subject: Arsenic Ditch Remediation
Closure Report
River Valley School Property
Marion, Ohio

Dear Mr. Steers:

On behalf of the U.S. Army Corps of Engineers – Louisville District, Montgomery Watson is providing the attached Arsenic Ditch Remediation Closure Report, River Valley School Property, Marion, Ohio for your information. If you have any questions regarding the attached document, please contact me at (248) 449-3430 or Mr. Wesley Watson of the U.S. Army Corps of Engineers at (502) 582-5400.

Sincerely,

MONTGOMERY WATSON

Jeffrey J. LeBlanc
Project Manager

cc: Mr. Wesley Watson, USACE (2 copies)
Mr. Kerry Kennedy, USACE (2 copies)
Mr. Steve Wagner, Ohio Department of Health (1 copy)
Ms. Sari Kolak, U.S. Environmental Protection Agency (1 copy)
Ms. Katherine Evans, ATSDR (1 copy)
Mr. Tom Shade, River Valley Local Schools (1 copy)
Mr. Gerry Myers, Metcalf & Eddy (1 copy)
Mr. J.R. Kolmer, JR Kolmer & Associates, Inc. (1 copy)
Ms. Sereana Dresbach-Howard, RAB Technical Committee (1 copy)
Ms. Jodi Griffith, RAB Technical Committee (1 copy)
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**FORMERLY USED DEFENSE SITE
MARION ENGINEER DEPOT
MARION, OHIO**

**RIVER VALLEY SCHOOL PROPERTY
ARSENIC DITCH REMEDIATION
CLOSURE REPORT**

April 2000

**Prepared For:
United States Army Corps of Engineers
Louisville, Kentucky**

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**Prepared By:
Montgomery Watson
Novi, Michigan**

**Total Environmental Restoration Contract
DACW27-97-D-0015 Task Order 005**

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1.0 INTRODUCTION

Montgomery Watson was contracted to perform remediation of arsenic-contaminated soils within drainage ditches at the River Valley School (RVS) site on the former Marion Engineer Depot (MED) in Marion, Ohio (Figure 1). This work was performed under the United States Army Corps of Engineers (USACE) Total Environmental Restoration Contract (TERC), Contract No. DACW27-97-D-0015 Task Order No. 0005. All work related to the remediation efforts for this project was completed under work authorization document (WAD) 07.

This Closure Report summarizes the activities and procedures followed during the remediation of the arsenic impacted soils in the drainage ditches. It contains information generated during, and in support of, the arsenic-laden soil removal activities completed at RVS.

The RVS drainage ditches were initially investigated by the Ohio Environmental Protection Agency (OhioEPA) through their subcontractor, Lawhorn and Associates, Inc. (Lawhorn), in 1997. The preliminary investigation, conducted by Lawhorn, identified arsenic as a chemical of concern (COC) in the shallow soils within the drainage ditches (hereinafter also referred to as arsenic ditches) located on the north and east sides of the RVS property (Figure 2). Further investigation on the extent of impacted soil in the RVS drainage ditches was completed by Montgomery Watson in 1998, under contract to the USACE as part of the remedial investigation (RI) for the RVS site. The results of this investigation were used to assess the extent of arsenic in the shallow soils within the drainage ditches. The cleanup goal for arsenic at the site was defined as the background concentration for arsenic in area soils, as described in the Remedial Action Plan (RAP) developed by Montgomery Watson (1998c) specific to the remediation of the arsenic ditches at RVS.

The arsenic ditches remedial efforts involved excavating soils containing arsenic above background concentrations, disposal of excavated soils, collection of confirmatory soil samples, air monitoring, backfilling of the excavations with clean fill, and site restoration. Remedial activities were continued until confirmation samples indicated levels of arsenic below the pre-determined background values. All field activities, methods, and procedures were discussed in the Remedial Action Plan (RAP, Montgomery Watson, 1998c). The approved RAP contained the Sampling and Analysis Plan; the Quality Assurance Project Plan Addendum; the Site Specific Health and Safety Plan Addendum for the project; the Contractor Quality Control Plan; and a technical memorandum for the determination of the background concentration of arsenic in soil.

2.0 BACKGROUND

This section summarizes background information for the RVS property, including a site description, history, and previous investigations conducted on the RVS site. The information in this section was obtained from the *Report on the Environmental Assessment of the Former Marion Engineer Depot* by ERM-Midwest, Inc., June 1990; *Interim Report for the River Valley Local Schools, Marion* by Lawhon & Associates, Inc. for the OhioEPA, December 1997; and the *Marion Engineer Depot / Scioto Ordnance Plant Remedial Investigation Final Workplan* by Montgomery Watson (1998a).

2.1 SITE DESCRIPTION AND HISTORY

In 1942, the Army Corps of Engineers of the Ohio River Division received authorization to construct an engineer equipment storage depot near Marion, Ohio. Property was acquired, and construction began in June 1942. The storage depot was completed in November 1942. The depot had various names, including the War Aid Depot, the Marion Quartermaster Depot, the Marion Holding and Reconsignment Depot, and finally the Marion Engineer Depot. The depot was the largest of its kind in the United States, its main purpose being the storage and renovation of heavy construction machinery for the U.S. Army. Prisoners of war were encamped at the depot and were involved in labor and mechanical work. Following the war, the MED continued to operate until 1961. Land on the east end of the depot was acquired by the River Valley Local School District in 1961. The remaining portions of the MED were sold to other parties.

The portion of the former MED acquired by the River Valley Local School District had previously been used by the Army during the Second World War for the prisoner of war camp. Prisoners arrived via a rail spur (now gone from the site) on the north end of the property. Records indicate the prisoners were sprayed with an arsenic-laden delousing agent upon exiting the rail cars. In addition, railcars may also have been treated with arsenic-bearing fumigants.

As a result of these activities, soils in the drainage ditches on both sides of the former rail spur, now a road, contained elevated levels of arsenic. Today these ditches, referred to as the agricultural field ditches, are present on both sides of the paved road that is used by RVS for access to parking, school tennis courts, soccer field, football field, and the agricultural field. The drainage ditches are approximately one-half to one-foot deep depressions on both sides of the road and traverse the width of the school property, approximately 1,100 feet, in a northeast – southwest direction. In addition, soils in the drainage ditches present along Highway 93 on the eastern perimeter of the RVS grounds (herein referred to as the east ditches) also exhibited elevated arsenic levels at several locations.

2.2 PREVIOUS INVESTIGATIONS

Surface and subsurface investigations were conducted at the RVS portion of the former MED by Lawhon under contract to the OhioEPA and by Montgomery Watson under contract to the USACE. The following information describes the results of these investigations specific to the drainage ditches located in the northern portion of the RVS grounds.

Lawhon & Associates, Inc./OhioEPA. Lawhon conducted sediment (more appropriately referred to as shallow soils) sampling during the week of November 10, 1997. Samples were collected from drainage ditches on the RVS site, including the drainage swales adjacent to the agricultural field. The shallow soil samples are identified by the prefix SWD, and sampling locations are presented in Figure 3.

Montgomery Watson/USACE. The field investigations conducted by Montgomery Watson at the former MED during the summer of 1998 included the performance of a detailed and comprehensive radiological survey of all 78 acres of the RVS grounds, a soil gas survey, and the drilling and sampling of numerous soil borings to various depths below ground surface. Shallow soil samples were also collected for laboratory analysis from the drainage ditches throughout the school grounds. Shallow soil samples were collected and analyzed for arsenic, and additional samples were tested for TAL metals, VOCs, SVOCs and PCBs (refer to Appendix A for a list of acronyms). The sample locations for the agricultural field ditches are shown on Figure 4 and those for the east drainage ditches along Highway 98 appear on Figure 5. All samples were collected and analyzed in accordance with the Workplan (Montgomery Watson, 1998a) and RAP (Montgomery Watson, 1998c) developed for the RVS RI.

3.0 REMEDIATION EXTENT AND GOALS

This section summarizes findings in the previous investigations, “hot spots” locations, and the background remediation goal for the drainage ditches at RVS. The information in this section was obtained from the Lawhon report (1997) and from results compiled by Montgomery Watson.

3.1 CONTAMINANT DISTRIBUTION

Soil and sediment sample results have been compiled from the previous investigations and are summarized in Table 1 (Lawhon) and Table 2 (Montgomery Watson). These data tables include the sample identification number and analyte concentration in milligrams per kilogram (mg/kg).

The data collected from the RVS site were categorized based on the drainage ditch from which the samples were collected (Figure 2) as follows: (1) the agricultural (ag) field ditches along the south side of the agricultural field and adjacent to the tennis courts and football field (Figure 4), and (2) the east (or eastern) drainage ditches along Highway 98 (Figure 5).

3.2 REMEDIATION GOALS

The goal of the remedial action was to remove soils containing elevated (above background) levels of arsenic from the drainage ditches at the RVS grounds. To determine which areas required excavation, remediation goals were established from appropriate regulatory requirements. For this remedial action, the OhioEPA directed the USACE to assume the site cleanup goal for arsenic to be the background level.

The background concentration for arsenic in soil was determined from a soil sample population not associated with any discernable contamination at the site. The sample population data and the equations used to determine background are provided in the RAP as Appendix E. Based on these background concentration calculations for arsenic, the remediation goal for the ditch remediation effort was set at 18 mg/kg.

3.3 SCOPE OF REMEDIAL EFFORTS

The removal action involved the excavation and off-site disposal of impacted soils. Impacted soils were removed from ditches using a tracked excavator or backhoe and loaded into trucks for transportation to an approved disposal facility.

The extent of contamination (“hot spots”) had previously been determined from analytical results of samples collected during the RI for the RVS site. The contamination identified in

the ditches was restricted to shallow soils (i.e., generally less than two feet deep). Between the "hot spots", sample results indicated no elevated arsenic levels; consequently, soils in these areas were not removed. Figures 6 and 7 show the approximate extent of the "hot spots" within the agricultural field ditches and east ditches, respectively.

4.0 REMEDIATION ACTIVITIES

This section presents a description of the remediation activities performed within specific drainage ditches located within the River Valley School property. This section details the soil removal, disposal, confirmation sampling, air monitoring, and site restoration that took place over the course of the remedial efforts.

The on-site activities occurred from November 21, 1998 to August 17, 1999. All excavation and soil removal activities were conducted when school was not in session or on weekends. Removal of impacted soils was followed by confirmation sampling and analysis to verify cleanup. Air monitoring for arsenic particulates was performed for field personnel and at fixed stations around the excavation area during field activities.

4.1 REMOVAL OF CONTAMINATED SOILS

Removal of arsenic contaminated soils took place on November 21 and 22, 1998; December 5, 12, and 21, 1998; and on February 20, May 8 and August 17, 1999. Soil removal operations followed the scope of work detailed in the approved RAP (Montgomery Watson, November 1998c). A brief description of the soil removal activities and dates is outlined below. The resultant excavations were backfilled after each removal effort.

November 21 and 22, 1998 – Excavation of impacted soils was completed on the eastern end of the agricultural field ditch. Approximately 920 tons of soil was excavated and disposed of. A total of 84 confirmation soil samples (along with QA/QC samples) were collected from the excavation floors and walls.

December 5, 1998 – Excavation of impacted soils continued on the remaining portion of the agricultural field ditch and at locations where confirmation sampling from November indicated additional “hot spots”. Approximately 571 tons of soil was excavated and disposed of. A total of 134 confirmation soil samples (along with QA/QC samples) were collected from the excavation floors and walls.

December 12, 1998 – Excavation of impacted soils was initiated at the impacted locations on the east ditches (along Highway 98). Approximately 153 tons of soil was excavated and disposed of. A total of 50 confirmation soil samples (along with QA/QC samples) were collected from the excavation floors and walls.

December 21, 1998 – Impacted soil was excavated from 13 previously sampled locations showing elevated arsenic levels, based on the November confirmation sampling. Approximately 22 tons of soil was excavated and disposed of. A total of 13 additional confirmation soil samples (along with QA/QC samples) were collected from the excavation floors and walls.

February 20, 1999 – Impacted soil was removed at 19 previously sampled areas within the agricultural field ditches and the east ditches. Approximately 47 tons of soil was excavated and disposed of. A total of 21 confirmation soil samples (along with QA/QC samples) were collected from the excavation floors and walls. Two of these samples (SS-RV-FO-01 and SS-RV-FO-02) were collected by hand adjacent to the GTE fiber optic line in front of the RVS High School building along the east ditch.

May 8, 1999 – Additional impacted soils were removed at 11 previously sampled locations in the agricultural field ditches and the Route 98 (east) ditches. Approximately 33 tons of soil was excavated and disposed of. A total of 12 confirmation soil samples (along with QA/QC samples) were collected from the excavation floors or walls. One sample (SS-RV-FO-03) was collected by hand along the trace of the GTE fiber optic line.

August 17, 1999 – Additional soil at two sample locations within the east ditches was excavated. Prior to the excavation, discrete soil samples were collected at these two areas with a Geoprobe. Soil samples were collected below the depth of the previous excavation. Soil samples were collected at depths of 6 and 8 feet below ground surface at each area and analyzed. The depth of excavation for each area was predetermined by the results of the sample analysis. Approximately 14 tons of soil was excavated and disposed of.

In summary, a total of 1,758.54 tons of soil was excavated and disposed of during the course of the removal effort. Table 3 shows the dates and truck weights of all soil removed from the site. All soil was manifested and disposed of as non-hazardous waste at Waste Management Suburban Landfill in Glenford, Ohio. Copies of the soil manifests are presented in Appendix B.

During the soil removal efforts, the trucks and excavation equipment were decontaminated on an established decontamination pad. All decontamination water was containerized in a portable tank for disposal. Approximately 400 gallons of decontamination water was removed from the site by Four Seasons Environmental and disposed of at Allwaste in Columbus, Ohio. A copy of the liquid waste manifest is presented in Appendix B.

4.2 CONFIRMATION SOIL SAMPLES

During the removal efforts approximately 350 confirmation soil samples (including QA/QC samples) were collected from the excavations from the agricultural field and east ditches. Only areas that exhibited arsenic levels above background were remediated based on the initial sampling of the ditches as summarized in Section 3. All other areas did not indicate concentrations exceeding the background level and therefore were not excavated.

During the initial excavation activities (November 21 and 22, and December 5 and 12, 1998) the top two feet of soil were removed from all ditches where concentrations of

arsenic were detected above background. Two hundred sixty-nine (269) confirmation soil samples were collected from the floor and walls of the excavation. These samples were submitted to the testing laboratory (Specialized Assays, Inc.) for total arsenic (dry weight) analysis. Confirmation soil samples were collected every 50 linear feet from the excavation floors and walls in accordance with the RAP. The Ohio EPA split samples during the initial confirmation sample collection.

The results of the confirmation samples were used to assess whether the arsenic cleanup goal was reached. If the arsenic level exceeded 18 mg/kg in the confirmation samples, additional soil was removed from that location, and confirmation sampling was repeated. Table 4 summarizes the results from all samples collected during the remedial efforts for the arsenic ditches. The table shows the confirmation sample ID number and the detected arsenic concentration. All additional samples collected from subsequent excavation activities at a specific location are also shown in Table 4. The shaded values in Table 4 indicate a sample where the cleanup goal was exceeded, and that as a result, additional soil was removed from that sample location.

4.2.1 Confirmatory Soil Sampling/Results – Agricultural Field Ditches

During the remedial efforts of the agricultural field ditches, a total of 270 confirmation soil samples were collected. Figure 8 shows the locations of the final confirmation soil samples. Table 5 lists the final confirmation samples and the detected concentrations.

Based on the final confirmation samples collected from the agricultural field ditches, the remedial efforts for this area have been successful in removing arsenic-impacted soils within these ditches.

4.2.2 Confirmatory Soil Sampling/Results – East Ditches

During the remedial efforts, 77 confirmation soil samples were collected along the east ditches. Figure 9 shows the locations of the final confirmation soil samples. Table 6 lists the final confirmation samples and the detected arsenic concentrations.

Based on the final confirmation samples, the remedial efforts for the east ditches have been successful in removing the arsenic-impacted soils within these ditches. However, two relatively small areas were not accessible for the removal of arsenic-impacted soils along the east ditches.

The first is located along the Highway 98 side of the wall in the southernmost excavation (Figure 9) at the location of sample SS-RV-C284 (wall sample), which had an arsenic concentration of 27.7 mg/kg. The size of the excavation was limited due to the proximity to Highway 98 and Ohio Department of Transportation right-of-way regulations. This area of exceedance of the arsenic background concentration is limited in extent, and likely not a

concern for exposure due to its proximity to the roadway (within eight feet of the pavement edge) and subsurface (depth of one foot) occurrence.

Another area in which complete excavation of impacted soils was not possible was along the GTE fiber optic line. Three samples were collected one foot below the surface along the line using a hand sampler. Two samples were collected in February 1999 (SS-RV-FO-01 and SS-RV-FO-02) and another in May 1999 (SS-RV-FO-03). The samples were collected one foot apart around the sensitive fiber optic line. The results of the sampling indicated concentrations of arsenic of 13.9 mg/kg, 35.3 mg/kg, and 5.91 mg/kg, respectively. Only the middle sample exhibited a value above the background concentration. It was interpreted that based on these results, the elevated arsenic level was isolated and associated with a very small quantity of soil. Due to the small volume of soil and sensitive nature of the fiber optic line, further excavation was not performed at this location.

4.3 SITE AIR MONITORING

Personal and perimeter air-monitoring programs were implemented in support of the arsenic ditch remediation at the RVS property. The monitoring of on-site worker health and safety was conducted in accordance with the Montgomery Watson Site Specific Health and Safety Plan as documented in the RAP (1998c). The Health and Safety Plan also supplements the information presented in the overall Montgomery Watson TERC Safety and Health Program (TERC SHP) (Montgomery Watson 1998b). The Health and Safety Plan provides procedures and requirements to address site-specific concerns, issues and planned activities associated with the soil removal action.

An air monitoring program was conducted to monitor fugitive dust concentrations and organic vapor emissions during the arsenic ditch remediation efforts. Work zone and perimeter air monitoring stations were setup and tested before, during, and after the initial excavation activities in November and December, 1998. Personal (worker) breathing zone particulate monitoring was also performed during site excavation and sampling activities. All samples were analyzed for arsenic in accordance with the National Institute of Occupational Safety and Health (NIOSH) Analytical Method 7300. No detections of arsenic were encountered during any of the on-site monitoring before, during, or following excavation activities. These data are provided in Appendix C.

Screening with a Photoionization Detector (PID) for volatile organic compounds (VOCs) and monitoring for dust using a Miniram dust monitor were performed concurrently with the removal activities to provide real-time air monitoring. No detectable PID readings were observed during any of the on-site activities. The dust monitoring revealed concentrations of dust ranging from 0.0 to 0.786 milligrams per meter cubed (mg/m^3), which is well below the established action level for airborne dust of $35 \text{ mg}/\text{m}^3$. Documentation of the air monitoring results is provided in Appendix C.

4.4 SITE RESTORATION

After completion of each round of soil removal and subsequent confirmation sampling, the resulting excavation was backfilled with imported fill material. Upon final completion of all excavating, sampling, and backfilling activities, the agricultural field and east ditches were regraded and seeded to restore the areas to their original condition.

5.0 SUMMARY AND CONCLUSIONS

Montgomery Watson has completed the removal of arsenic contaminated (above background) soils in the agricultural field ditches and east ditches on the River Valley School site. The removal efforts were based on previous investigations completed by Lawhon and Montgomery Watson, as detailed in the RAP (Montgomery Watson, November 1998c).

During the removal efforts, a total of 1,758.54 tons of soil was removed from the agricultural ditch and the east ditches. Over 300 confirmation soil samples were collected and analyzed for arsenic as part of the remedial efforts.

Based on the final confirmation sample results, all areas were remediated below the calculated background level, with the exception of two locations in the east ditch area. The first is located in the southernmost excavation (Figure 9) at sample SS-RV-C284 (wall sample), which had a concentration of 27.7 mg/kg. The excavation could not be extended due to its proximity to Highway 98 and Ohio Department of Transportation right-of-way regulations. The second area where removal was not possible was along the GTE fiber optic line (Figure 9). The impacted soil is isolated and associated with a very limited area. This soil was not removed due to the presence of the fiber optic line.

Personal, work zone, and perimeter monitoring of air quality during removal activities did not identify any arsenic in fugitive dust, nor were any organic vapor emissions observed from the excavations or soils removed from the site. All areas that were excavated as part of the remedial activities have been restored, graded and seeded.

6.0 REFERENCES

ERM-Midwest, Inc., 1990, Report on the Environmental Assessment of the Former Marion Engineer Depot, June.

Lawhon & Associates, Inc., 1997, Interim Report for the River Valley Local Schools, Marion, for the Ohio EPA, December.

Montgomery Watson 1998a, Marion Engineer Depot / Scioto Ordnance Plant Remedial Investigation Final Workplan, June.

Montgomery Watson 1998b, USACE Louisville District TERC Safety and Health Program, June.

Montgomery Watson, 1998c, Remedial Action Plan, River Valley School, Ditch Remediation, for the USACE, November.

TABLES

ARSENIC DITCH REMEDIATION CLOSURE REPORT

Table 1
Previous Investigation Data (Lawhon)
River Valley Schools
Marion, Ohio

	RY-SS-SWD1-01	RY-SS-SWD1-02	RY-SS-SWD1-03	RY-SS-SWD1-04	RY-SS-SWD2-01	RY-SS-SWD2-02	RY-SS-SWD2-03	RY-SS-SWD3-01	RY-SS-SWD3-02	RY-SS-SWD3-03	RY-SS-SWD3-03 DUP	RY-SS-SWD4-01	RY-SS-SWD4-02	RY-SS-SWD4-03	RY-SS-SWD5-01	RY-SS-SWD5-02	RY-SS-SWD5-02 DUP	RY-SS-SWD5-03 MS/MSI	RY-SS-SWD5-04	RY-SS-SWD6-01
Metals (mg/kg)																				
Cadmium	0.35	0.4	0.79	1	ND	0.25	ND	ND	ND	ND	ND	0.27	0.23	ND	0.49	1.1	0.9	ND	ND	ND
Chromium	16.9	20.7	23.8	16.8	33.3	16.3	17.6	26.1	28.2	19.3	15.1	16.3	14.6	18.9	26.9	28.8	26.1	10.1	19.7	20.4
Arsenic	18.7	70.1	34.5	22.6	238	197	50.9	58.4	26.1	24.1	19.2	12.8	16.6	16	47.9	92.3	89.4	33.7	9.4	12.6
Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND - Compound not detected at or above method detection limit
mg/kg - milligrams per kilogram

Table 2

Remedial Investigation Data (Montgomery Watson)
River Valley Schools
Marion, Ohio

Sample ID	Compound	Results	Units
RVS-SD-101	Arsenic	96	mg/kg
RVS-SD-102	Arsenic	7	mg/kg
RVS-SD-103	Arsenic	43	mg/kg
RVS-SD-104	Arsenic	58	mg/kg
RVS-SD-105	Arsenic	22	mg/kg
RVS-SD-106	Arsenic	101	mg/kg
RVS-SD-107	Arsenic	24	mg/kg
RVS-SD-108	Arsenic	10	mg/kg
RVS-SD-109	Arsenic	131	mg/kg
RVS-SD-110	Arsenic	80	mg/kg
RVS-SD-111	Arsenic	9	mg/kg
RVS-SD-112	Arsenic	95	mg/kg
RVS-SD-113	Arsenic	69	mg/kg
RVS-SD-114	Arsenic	14	mg/kg
RVS-SD-115	Arsenic	104	mg/kg
RVS-SD-116	Arsenic	78	mg/kg
RVS-SD-117	Arsenic	10	mg/kg
RVS-SD-118	Arsenic	24	mg/kg
RVS-SD-119	Arsenic	108	mg/kg
RVS-SD-120	Arsenic	14	mg/kg
RVS-SD-121	Arsenic	7	mg/kg
RVS-SD-122	Arsenic	68	mg/kg
RVS-SD-123	Arsenic	67	mg/kg
RVS-SD-124	Arsenic	44	mg/kg
RVS-SD-125	Arsenic	13	mg/kg
RVS-SD-126	Arsenic	48	mg/kg
RVS-SD-127	Arsenic	63	mg/kg
RVS-SD-128	Arsenic	148	mg/kg
RVS-SD-129	Arsenic	15	mg/kg
RVS-SD-130	Arsenic	1	mg/kg
RVS-SD-131	Arsenic	153	mg/kg
RVS-SD-132	Arsenic	24	mg/kg
RVS-SD-133	Arsenic	1	mg/kg
RVS-SD-134	Arsenic	118	mg/kg
RVS-SD-135	Arsenic	65	mg/kg
RVS-SD-136	Arsenic	2	mg/kg
RVS-SD-137	Arsenic	224	mg/kg
RVS-SD-138	Arsenic	141	mg/kg
RVS-SD-139	Arsenic	167	mg/kg
RVS-SD-140	Arsenic	151	mg/kg
RVS-SD-141	Arsenic	22	mg/kg
RVS-SD-142	Arsenic	121	mg/kg
RVS-SD-143	Arsenic	93	mg/kg
RVS-SD-144	Arsenic	5	mg/kg
RVS-SD-145	Arsenic	2	mg/kg
RVS-SD-146	Arsenic	65	mg/kg
RVS-SD-147	Arsenic	20	mg/kg
RVS-SD-148	Arsenic	177	mg/kg

mg/kg - milligrams per kilogram

Table 2

**Remedial Investigation Data (Montgomery Watson)
River Valley Schools
Marion, Ohio**

Sample ID	Compound	Results	Units
RVS-SD-149	Arsenic	115	mg/kg
RVS-SD-150	Arsenic	39	mg/kg
RVS-SD-151	Arsenic	106	mg/kg
RVS-SD-152	Arsenic	72	mg/kg
RVS-SD-153	Arsenic	25	mg/kg
RVS-SD-154	Arsenic	122	mg/kg
RVS-SD-155	Arsenic	157	mg/kg
RVS-SD-156	Arsenic	13	mg/kg
RVS-SD-157	Arsenic	172	mg/kg
RVS-SD-158	Arsenic	79	mg/kg
RVS-SD-159	Arsenic	16	mg/kg
RVS-SD-160	Arsenic	243	mg/kg
RVS-SD-161	Arsenic	148	mg/kg
RVS-SD-162	Arsenic	14	mg/kg
RVS-SD-163	Arsenic	187	mg/kg
RVS-SD-164	Arsenic	122	mg/kg
RVS-SD-165	Arsenic	10	mg/kg
RVS-SD-166	Arsenic	194	mg/kg
RVS-SD-167	Arsenic	178	mg/kg
RVS-SD-168	Arsenic	7	mg/kg
RVS-SD-169	Arsenic	174	mg/kg
RVS-SD-170	Arsenic	105	mg/kg
RVS-SD-171	Arsenic	8	mg/kg
RVS-SD-172	Arsenic	138	mg/kg
RVS-SD-173	Arsenic	206	mg/kg
RVS-SD-174	Arsenic	12	mg/kg
RVS-SD-175	Arsenic	164	mg/kg
RVS-SD-176	Arsenic	246	mg/kg
RVS-SD-177	Arsenic	11	mg/kg
RVS-SD-178	Arsenic	154	mg/kg
RVS-SD-179	Arsenic	112	mg/kg
RVS-SD-180	Arsenic	8	mg/kg
RVS-SD-181	Arsenic	8	mg/kg
RVS-SD-182	Arsenic	44	mg/kg
RVS-SD-183	Arsenic	16	mg/kg
RVS-SD-184	Arsenic	34	mg/kg
RVS-SD-185	Arsenic	60	mg/kg
RVS-SD-186	Arsenic	31	mg/kg
RVS-SD-187	Arsenic	27	mg/kg
RVS-SD-188	Arsenic	46	mg/kg
RVS-SD-189	Arsenic	11	mg/kg
RVS-SD-190	Arsenic	37	mg/kg
RVS-SD-191	Arsenic	50	mg/kg
RVS-SD-192	Arsenic	11	mg/kg
RVS-SD-193	Arsenic	25	mg/kg
RVS-SD-194	Arsenic	49	mg/kg
RVS-SD-195	Arsenic	11	mg/kg
RVS-SD-196	Arsenic	33	mg/kg

mg/kg - milligrams per kilogram

Table 2

**Remedial Investigation Data (Montgomery Watson)
River Valley Schools
Marion, Ohio**

Sample ID	Compound	Results	Units
RVS-SD-197	Arsenic	60	mg/kg
RVS-SD-198	Arsenic	18	mg/kg
RVS-SD-199	Arsenic	36	mg/kg
RVS-SD-200	Arsenic	67	mg/kg
RVS-SD-201	Arsenic	27	mg/kg
RVS-SD-202	Arsenic	30	mg/kg
RVS-SD-203	Arsenic	77	mg/kg
RVS-SD-204	Arsenic	11	mg/kg
RVS-SD-205	Arsenic	21	mg/kg
RVS-SD-206	Arsenic	100	mg/kg
RVS-SD-207	Arsenic	11	mg/kg
RVS-SD-208	Arsenic	13	mg/kg
RVS-SD-209	Arsenic	83	mg/kg
RVS-SD-210	Arsenic	12	mg/kg
RVS-SD-211	Arsenic	18	mg/kg
RVS-SD-212	Arsenic	77	mg/kg
RVS-SD-213	Arsenic	27	mg/kg
RVS-SD-214	Arsenic	12	mg/kg
RVS-SD-215	Arsenic	28	mg/kg
RVS-SD-216	Arsenic	50	mg/kg
RVS-SD-217	Arsenic	11	mg/kg
RVS-SD-218	Arsenic	23	mg/kg
RVS-SD-219	Arsenic	43	mg/kg
RVS-SD-220	Arsenic	12	mg/kg
RVS-SD-221	Arsenic	32	mg/kg
RVS-SD-222	Arsenic	18	mg/kg
RVS-SD-223	Arsenic	13	mg/kg
RVS-SD-224	Arsenic	63	mg/kg
RVS-SD-225	Arsenic	20	mg/kg
RVS-SD-226	Arsenic	22	mg/kg
RVS-SD-227	Arsenic	65	mg/kg
RVS-SD-228	Arsenic	26	mg/kg
RVS-SD-229	Arsenic	32	mg/kg
RVS-SD-230	Arsenic	75	mg/kg
RVS-SD-231	Arsenic	17	mg/kg
RVS-SD-232	Arsenic	30	mg/kg
RVS-SD-233	Arsenic	67	mg/kg
RVS-SD-234	Arsenic	20	mg/kg
RVS-SD-235	Arsenic	30	mg/kg
RVS-SD-236	Arsenic	64	mg/kg
RVS-SD-237	Arsenic	12	mg/kg
RVS-SD-238	Arsenic	31	mg/kg
RVS-SD-239	Arsenic	76	mg/kg
RVS-SD-240	Arsenic	17	mg/kg
RVS-SD-241	Arsenic	25	mg/kg
RVS-SD-242	Arsenic	94	mg/kg
RVS-SD-243	Arsenic	15	mg/kg
RVS-SD-244	Arsenic	25	mg/kg

mg/kg - milligrams per kilogram

Table 2

**Remedial Investigation Data (Montgomery Watson)
River Valley Schools
Marion, Ohio**

Sample ID	Compound	Results	Units
RVS-SD-245	Arsenic	77	mg/kg
RVS-SD-246	Arsenic	16	mg/kg
RVS-SD-247	Arsenic	16	mg/kg
RVS-SD-248	Arsenic	41	mg/kg
RVS-SD-249	Arsenic	34	mg/kg
RVS-SD-250	Arsenic	6	mg/kg
RVS-SD-251	Arsenic	25	mg/kg
RVS-SD-252	Arsenic	50	mg/kg
RVS-SD-253	Arsenic	14	mg/kg
RVS-SD-254	Arsenic	28	mg/kg
RVS-SD-255	Arsenic	26	mg/kg
RVS-SD-256	Arsenic	30	mg/kg
RVS-SD-257	Arsenic	13	mg/kg
RVS-SD-258	Arsenic	50	mg/kg
RVS-SD-259	Arsenic	19	mg/kg
RVS-SD-250	Arsenic	20	mg/kg
RVS-SD-251	Arsenic	10	mg/kg
RVS-SD-252	Arsenic	11	mg/kg
RVS-SD-253	Arsenic	23	mg/kg

mg/kg - milligrams per kilogram

TABLE 3
QUANTITY AND DATE OF SOIL REMOVAL
River Valley Schools
Marion, Ohio

Soil Disposal from the Arsenic Ditch Remedial Efforts			
Truck/Line Number	Date Soil Removed	Shipper Number	Amount of Soil Disposed (in tons)
1	11/21/98	001	23.94
2	11/21/98	002	24.19
3	11/21/98	003	29.18
4	11/21/98	004	32.18
5	11/21/98	005	30.20
6	11/21/98	006	33.42
7	11/21/98	007	32.49
8	11/21/98	008	33.09
9	11/21/98	009	31.66
10	11/21/98	010	26.56
11	11/21/98	011	25.21
12	11/21/98	012	33.27
13	11/21/98	013	24.72
14	11/21/98	015	26.12
15	11/21/98	016	29.3
16	11/21/98	014	26.67
17	11/21/98	017	28.09
18	11/21/98	018	27.7
19	11/21/98	019	26.99
20	11/22/98	022	21.12
21	11/22/98	029	17.67
22	11/22/98	028	19.66
23	11/22/98	031	17.84
24	11/22/98	037	21.52
25	11/22/98	030	20.42
26	11/22/98	020	32.43
27	11/22/98	021	22.64
28	11/22/98	027	17.15
29	11/22/98	025	21.68
30	11/22/98	026	22.11
31	11/22/98	024	21.44
32	11/22/98	023	18.97
33	11/22/98	035	18.13
34	11/22/98	033	17.41
35	11/22/98	034	17.06
36	11/22/98	036	16.84
37	11/22/98	038	14.63
38	11/22/98	032	16.17
39	12/5/93	001	12.51
40	12/5/93	002	22.32

TABLE 3
QUANTITY AND DATE OF SOIL REMOVAL
River Valley Schools
Marion, Ohio

Soil Disposal from the Arsenic Ditch Remedial Efforts			
Truck/Line Number	Date Soil Removed	Shipper Number	Amount of Soil Disposed (in tons)
41	12/5/98	003	19.48
42	12/5/98	004	23.37
43	12/5/98	005	21.62
44	12/5/98	006	19.97
45	12/5/98	007	17.69
46	12/5/98	008	15.72
47	12/5/98	009	24.08
48	12/5/98	010	18.2
49	12/5/98	011	17.11
50	12/5/98	012	19.12
51	12/5/98	013	26.61
52	12/5/98	014	21.07
53	12/5/98	015	27.59
54	12/5/98	016	20.04
55	12/5/98	017	31.82
56	12/5/98	018	31.87
57	12/5/98	019	18.62
58	12/5/98	020	24.18
59	12/5/98	021	33.38
60	12/5/98	022	25.52
61	12/5/98	023	22.07
62	12/5/98	024	29.82
63	12/5/98	025	18.32
64	12/5/98	026	9.14
65	12/12/98	005	19.41
66	12/12/98	006	20.49
67	12/12/98	007	26.96
68	12/12/98	003	18.52
69	12/12/98	001	14.49
70	12/12/98	002	23.19
71	12/12/98	004	29.49
72	12/21/98	001	21.52
73	2/20/99	001	17.18
74	2/20/99	002	17.00
75	2/20/99	003	12.60
76	5/8/99	001	21.41
77	5/8/99	002	11.32
78	8/17/99	022	13.68
Soil Total			1758.54

TABLE 4

Summary of Confirmation Soil Samples and Duplicates
River Valley Schools
Marion, Ohio

1st Confirmation Sampling Event					Ohio EPA Confirm. Sample Results	2nd Confirmation Sampling Event			3rd Confirmation Sampling Event					4th Confirmation Sampling Event					5th Confirmation Sampling Event				
Sample ID	Arsenic Results (mg/kg)	Duplicate Sample ID	Results of Dups (mg/kg)	Date Sampled		Sample ID	Arsenic Results (mg/kg)	Date Sampled	Sample ID	Arsenic Results (mg/kg)	Duplicate Sample ID	Results of Dups (mg/kg)	Date Sampled	Sample ID	Arsenic Results (mg/kg)	Duplicate Sample ID	Results of Dups (mg/kg)	Date Sampled	Sample ID	Arsenic Results (mg/kg)	Duplicate Sample ID	Results of Dups (mg/kg)	Date Sampled
AG-Field																							
SS-RV-C001	7.79			11/22/98																			
SS-RV-C002	11.1			11/22/98																			
SS-RV-C003	13.7			11/22/98																			
SS-RV-C004	21.9			11/22/98																			
SS-RV-C005	27.2	SS-RV-C500	35.6	11/22/98		SS-RV-C215	17.4	12/6/98	SS-RV-C295	15.8			2/20/99										
SS-RV-C006	9.06			11/22/98																			
SS-RV-C007	7.88			11/22/98																			
SS-RV-C008	6.49			11/22/98																			
SS-RV-C009	24.5			11/22/98		SS-RV-C216	16.7	12/6/98															
SS-RV-C010	8.72			11/22/98																			
SS-RV-C011	16.0	SS-RV-C501	12.3	11/22/98																			
SS-RV-C012	18.6			11/22/98																			
SS-RV-C013	18.3			11/22/98																			
SS-RV-C014	28.6			11/22/98		SS-RV-C217	13.2	12/6/98															
SS-RV-C015	16.4			11/22/98																			
SS-RV-C016	21.7			11/22/98										SS-RV-C296	23.6			2/20/99	SS-RV-C302	13.5			5/8/99
SS-RV-C017	14.7			11/22/98																			
SS-RV-C018	14.5			11/22/98																			
SS-RV-C019	8.21			11/22/98																			
SS-RV-C020	13.7	SS-RV-C502	14.4	11/22/98																			
SS-RV-C021	9.27			11/22/98																			
SS-RV-C022	9.94			11/22/98																			
SS-RV-C023	12.0			11/22/98																			
SS-RV-C024	14.2			11/22/98																			
SS-RV-C025	10.8			11/22/98																			
SS-RV-C026	16.7			11/22/98																			
SS-RV-C027	15.1	SS-RV-C503	15.7	11/22/98																			
SS-RV-C028	13.3			11/22/98		SS-RV-C214	5.27	12/6/98															
SS-RV-C029	25.8			11/22/98																			
SS-RV-C030	15.6			11/22/98																			
SS-RV-C031	15.0			11/22/98																			
SS-RV-C032	11.6			11/22/98																			
SS-RV-C033	14.7			11/22/98																			
SS-RV-C034	16.6			11/22/98																			
SS-RV-C035	19.0	SS-RV-C504	12.4	11/22/98										SS-RV-C297	11.0			2/20/99					
SS-RV-C036	16.9			11/22/98																			
SS-RV-C037	10.9			11/22/98																			
SS-RV-C038	5.96			11/22/98																			
SS-RV-C039	11.0			11/22/98																			
SS-RV-C040	10.8			11/22/98																			
SS-RV-C041	10.9			11/22/98																			
SS-RV-C042	12.6			11/22/98																			
SS-RV-C043	13.8			11/22/98																			
SS-RV-C044	9.10			11/22/98																			
SS-RV-C045	16.5			11/22/98																			
SS-RV-C046	8.67			11/22/98																			
SS-RV-C047	4.00			11/22/98																			
SS-RV-C048	11.7			11/22/98																			
SS-RV-C049	14.5			11/22/98																			
SS-RV-C050	5.53	SS-RV-C505	6.37	11/22/98																			
SS-RV-C051	23.1			11/22/98										SS-RV-C298	21.1			2/20/99	SS-RV-C303	9.4	SS-RV-C530	10.3	5/8/99
SS-RV-C052	8.7			11/22/98																			
SS-RV-C053	5.84			11/22/98																			
SS-RV-C054	6.57			11/22/98																			
SS-RV-C055	5.81			11/22/98																			
SS-RV-C056	6.47			11/22/98																			
SS-RV-C057	5.61			11/22/98																			
SS-RV-C058	4.98			11/22/98																			
SS-RV-C059	15.5			11/22/98																			
SS-RV-C060	3.89			11/22/98																			
SS-RV-C061	6.64			11/22/98																			
SS-RV-C062	15.7			11/22/98																			
SS-RV-C063	7.38			11/22/98																			
SS-RV-C064	6.93			11/22/98																			
SS-RV-C065	17.4	SS-RV-C506	15.7	11/22/98																			
SS-RV-C066	4.17			11/22/98										SS-RV-C299	21.0			2/20/99	SS-RV-C304	11.2			5/8/99
SS-RV-C067	22.5			11/22/98																			
SS-RV-C068	16.5			11/22/98																			
SS-RV-C069	5.21			11/22/98																			
SS-RV-C070	23.0			11/22/98		SS-RV-C218	13.1	12/6/98															
SS-RV-C071	13.5			11/22/98																			
SS-RV-C072	10.6			11/22/98																			
SS-RV-C073	21.7			11/22/98										SS-RV-C300	17.3			2/20/99					
SS-RV-C074	7.96			11/22/98																			
SS-RV-C075	6.27			11/22/98																			
SS-RV-C076	12.0			11/22/98																			
SS-RV-C077	12.4			11/22/98																			
SS-RV-C078	12.6			11/22/98																			
SS-RV-C079	14.3	SS-RV-C507	9.27	11/22/98																			
SS-RV-C080	15.1			11/22/98																			

mg/kg - milligrams per kilogram
Shaded values indicates value above calculated background

TABLE 4

Summary of Confirmation Soil Samples and Duplicates
River Valley Schools
Marion, Ohio

1st Confirmation Sampling Event					Ohio EPA Confirm. Sample Results	2nd Confirmation Sampling Event			3rd Confirmation Sampling Event					4th Confirmation Sampling Event					5th Confirmation Sampling Event				
Sample ID	Arsenic Results (mg/kg)	Duplicate Sample ID	Results of Dups (mg/kg)	Date Sampled		Sample ID	Arsenic Results (mg/kg)	Date Sampled	Sample ID	Arsenic Results (mg/kg)	Duplicate Sample ID	Results of Dups (mg/kg)	Date Sampled	Sample ID	Arsenic Results (mg/kg)	Duplicate Sample ID	Results of Dups (mg/kg)	Date Sampled	Sample ID	Arsenic Results (mg/kg)	Duplicate Sample ID	Results of Dups (mg/kg)	Date Sampled
SS-RV-C081	13.9			11/22/98																			
SS-RV-C082	15.6			11/22/98																			
SS-RV-C083	14.4			11/22/98																			
SS-RV-C084	11.7	SS-RV-C508	12.0	11/22/98																			
SS-RV-C085	17.6	SS-RV-C509	21.6	12/6/98		SS-RV-C282	9.58	12/21/98															
SS-RV-C086	21.0			12/6/98		SS-RV-C270	8.05	12/21/98															
SS-RV-C087	16.5			12/6/98																			
SS-RV-C088	5.8			12/6/98	28.4									SS-RV-C287	7.77			2/20/99					
SS-RV-C089	18.7			12/6/98																			
SS-RV-C090	15.4			12/6/98																			
SS-RV-C091	12.1			12/6/98																			
SS-RV-C092	8.51			12/6/98																			
SS-RV-C093	9.44			12/6/98																			
SS-RV-C094	6.59			12/6/98																			
SS-RV-C095	10.9	SS-RV-C510	9.48	12/6/98																			
SS-RV-C096	17.3			12/6/98																			
SS-RV-C097	7.90			12/6/98																			
SS-RV-C098	5.77			12/6/98																			
SS-RV-C099	6.78			12/6/98																			
SS-RV-C100	3.91			12/6/98																			
SS-RV-C101	9.69			12/6/98																			
SS-RV-C102	3.97			12/6/98																			
SS-RV-C103	6.34			12/6/98																			
SS-RV-C104	4.91			12/6/98																			
SS-RV-C105	8.89	SS-RV-C511	7.72	12/6/98																			
SS-RV-C106	15.1			12/6/98																			
SS-RV-C107	7.30			12/6/98																			
SS-RV-C108	15.1			12/6/98																			
SS-RV-C109	6.30			12/6/98																			
SS-RV-C110	9.56			12/6/98																			
SS-RV-C111	7.20			12/6/98																			
SS-RV-C112	8.06			12/6/98																			
SS-RV-C113	5.91			12/6/98																			
SS-RV-C114	5.35			12/6/98																			
SS-RV-C115	11.7	SS-RV-C512	8.29	12/6/98																			
SS-RV-C116	3.93			12/6/98																			
SS-RV-C117	7.62			12/6/98																			
SS-RV-C118	14.1			12/6/98																			
SS-RV-C119	8.63			12/6/98																			
SS-RV-C120	5.35			12/6/98																			
SS-RV-C121	9.53			12/6/98																			
SS-RV-C122	5.64			12/6/98																			
SS-RV-C123	6.78			12/6/98																			
SS-RV-C124	4.45			12/6/98																			
SS-RV-C125	7.75	SS-RV-C513	5.40	12/6/98																			
SS-RV-C126	10.8			12/6/98																			
SS-RV-C127	6.35			12/6/98																			
SS-RV-C128	8.20			12/6/98																			
SS-RV-C129	8.89			12/6/98																			
SS-RV-C130	5.68			12/6/98																			
SS-RV-C131	7.92			12/6/98																			
SS-RV-C132	7.39			12/6/98																			
SS-RV-C133	7.3			12/6/98																			
SS-RV-C134	9.25			12/6/98																			
SS-RV-C135	8.26	SSRV-C514	25.5	12/6/98		SS-RV-C273	4.52	12/21/98															
SS-RV-C136	8.44			12/6/98																			
SS-RV-C137	5.16			12/6/98																			
SS-RV-C138	8.05			12/6/98																			
SS-RV-C139	10.5			12/6/98																			
SS-RV-C140	8.24			12/6/98																			
SS-RV-C141	7.84			12/6/98																			
SS-RV-C142	8.58			12/6/98																			
SS-RV-C143	11.2			12/6/98																			
SS-RV-C144	9.99			12/6/98																			
SS-RV-C145	9.20	SSRV-C515	8.72	12/6/98																			
SS-RV-C146	11.4			12/6/98																			
SS-RV-C147	9.27			12/6/98																			
SS-RV-C148	6.40			12/6/98																			
SS-RV-C149	8.73			12/6/98																			
SS-RV-C150	10.0			12/6/98																			
SS-RV-C151	5.73			12/6/98																			
SS-RV-C152	8.33			12/6/98																			
SS-RV-C153	9.34			12/6/98																			
SS-RV-C154	11.7	SSRV-C516	10.2	12/6/98																			
SS-RV-C155	11.4			12/6/98																			
SS-RV-C156	8.06			12/6/98																			
SS-RV-C157	9.08			12/6/98																			
SS-RV-C158	9.90			12/6/98																			
SS-RV-C159	6.16			12/6/98																			
SS-RV-C160	16.5			12/6/98																			

mg/kg - milligrams per kilogram
Shaded values indicates value above calculated background

TABLE 4
Summary of Confirmation Soil Samples and Duplicates
River Valley Schools
Marion, Ohio

1st Confirmation Sampling Event					Ohio EPA Confirm. Sample Results	2nd Confirmation Sampling Event			3rd Confirmation Sampling Event					4th Confirmation Sampling Event					5th Confirmation Sampling Event				
Sample ID	Arsenic Results (mg/kg)	Duplicate Sample ID	Results of Dups (mg/kg)	Date Sampled		Sample ID	Arsenic Results (mg/kg)	Date Sampled	Sample ID	Arsenic Results (mg/kg)	Duplicate Sample ID	Results of Dups (mg/kg)	Date Sampled	Sample ID	Arsenic Results (mg/kg)	Duplicate Sample ID	Results of Dups (mg/kg)	Date Sampled	Sample ID	Arsenic Results (mg/kg)	Duplicate Sample ID	Results of Dups (mg/kg)	Date Sampled
SS-RV-C161	24.3			12/6/98		SS-RV-C271	14.6	12/21/98															
SS-RV-C162	12.0			12/6/98																			
SS-RV-C163	6.52			12/6/98																			
SS-RV-C164	9.46			12/6/98																			
SS-RV-C165	7.79	SS-RV-C517	16.5	12/6/98																			
SS-RV-C166	6.10			12/6/98		SS-RV-C272	15.1	12/21/98															
SS-RV-C167	20.0			12/6/98																			
SS-RV-C168	17.0			12/6/98																			
SS-RV-C169	10.4			12/6/98																			
SS-RV-C170	45.7			12/6/98		SS-RV-C274	9.1	12/21/98															
SS-RV-C171	20.5			12/6/98		SS-RV-C275	14.5	12/21/98															
SS-RV-C172	9.21			12/6/98																			
SS-RV-C173	10.3			12/6/98																			
SS-RV-C174	9.58			12/6/98																			
SS-RV-C175	19.2	SS-RV-C518	15.6	12/6/98		SS-RV-C276	45.8	12/21/98	SS-RV-C289	27.6			2/20/99	SS-RV-C305	11.7			5/8/99					
SS-RV-C176	5.54			12/6/98																			
SS-RV-C177	8.28			12/6/98		SS-RV-C277	9.11	12/21/98															
SS-RV-C178	21.3			12/6/98																			
SS-RV-C179	6.25			12/6/98																			
SS-RV-C180	8.23			12/6/98																			
SS-RV-C181	16.8			12/6/98																			
SS-RV-C182	6.46			12/6/98																			
SS-RV-C183	5.66			12/6/98																			
SS-RV-C184	12.8			12/6/98	21.2				SS-RV-C288	19.0			2/20/99	SS-RV-C306	15.1			5/8/99					
SS-RV-C185	8.18	SS-RV-C519	7.37	12/6/98																			
SS-RV-C186	4.72			12/6/98																			
SS-RV-C187	16.3			12/6/98																			
SS-RV-C188	9.6			12/6/98																			
SS-RV-C189	8.15			12/6/98																			
SS-RV-C190	9.63			12/6/98																			
SS-RV-C191	9.51			12/6/98																			
SS-RV-C192	8.07			12/6/98																			
SS-RV-C193	15.5			12/6/98	21.5	SS-RV-C278	8.68	12/21/98	SS-RV-C301	12.6			2/20/99										
SS-RV-C194	125			12/6/98																			
SS-RV-C195	11.1	SS-RV-C520	10.8	12/6/98																			
SS-RV-C196	17.1			12/6/98																			
SS-RV-C197	18.3			12/6/98																			
SS-RV-C198	7.01			12/6/98																			
SS-RV-C199	25.6			12/6/98	112	SS-RV-C279	49.5	12/21/98	SS-RV-C290	21.4			2/20/99	SS-RV-C307	13.3			5/8/99					
SS-RV-C200	15.6			12/6/98																			
SS-RV-C201	9.10			12/6/98																			
SS-RV-C202	11.9			12/6/98																			
SS-RV-C203	16.9			12/6/98																			
SS-RV-C204	11.7			12/6/98																			
SS-RV-C205	9.88	SS-RV-C521	3.14	12/6/98																			
SS-RV-C206	8.94			12/6/98																			
SS-RV-C207	9.28			12/6/98																			
SS-RV-C208	6.76			12/6/98																			
SS-RV-C209	11.3			12/6/98																			
SS-RV-C210	10.3			12/6/98																			
SS-RV-C211	7.07			12/6/98		SS-RV-C280	18.9	12/21/98															
SS-RV-C212	24.8			12/6/98		SS-RV-C281	7.29	12/21/98															
SS-RV-C213	20.6			12/6/98																			

mg/kg - milligrams per kilogram
Shaded values indicates value above calculated background

TABLE 4

Summary of Confirmation Soil Samples and Duplicates
River Valley Schools
Marion Ohio

1st Confirmation Sampling Event					Ohio EPA Confirm. Sample Results	2nd Confirmation Sampling Event			3rd Confirmation Sampling Event					4th Confirmation Sampling Event					5th Confirmation Sampling Event					
Sample ID	Arsenic Results (mg/kg)	Duplicate Sample ID	Results of Dups (mg/kg)	Date Sampled		Sample ID	Arsenic Results (mg/kg)	Date Sampled	Sample ID	Arsenic Results (mg/kg)	Duplicate Sample ID	Results of Dups (mg/kg)	Date Sampled	Sample ID	Arsenic Results (mg/kg)	Duplicate Sample ID	Results of Dups (mg/kg)	Date Sampled	Sample ID	Arsenic Results (mg/kg)	Duplicate Sample ID	Results of Dups (mg/kg)	Date Sampled	
HIGHWAY 98																								
SS-RV-C219	5.62			12/12/98																				
SS-RV-C220	10.3			12/12/98																				
SS-RV-C221	30.5			12/12/98																				
SS-RV-C222	9.04			12/12/98					SS-RV-C291	21.2			2/20/99	SS-RV-C308	12.0			5/8/99						
SS-RV-C223	20.6			12/12/98					SS-RV-C292	24.0			2/20/99	SS-RV-C309	25.9			5/8/99	SS-RV-C310	15.1			8/6/99	
SS-RV-C224	11.9	SS-RV-C522	15.1	12/12/98																				
SS-RV-C225	12.0			12/12/98																				
SS-RV-C226	11.3			12/12/98																				
SS-RV-C227	11.2			12/12/98																				
SS-RV-C228	5.69			12/12/98																				
SS-RV-C229	13.4			12/12/98																				
SS-RV-C230	16.9			12/12/98																				
SS-RV-C231	11.6			12/12/98																				
SS-RV-C232	8.79			12/12/98																				
SS-RV-C233	5.76			12/12/98																				
SS-RV-C234	13.6			12/12/98																				
SS-RV-C235	15.2	SS-RV-C523	23.5	12/12/98					SS-RV-C293	26.1			2/20/99	SS-RV-C310	14.8			5/8/99						
SS-RV-C236	5.14			12/12/98																				
SS-RV-C237	5.94			12/12/98																				
SS-RV-C238	7.71			12/12/98																				
SS-RV-C239	6.52			12/12/98																				
SS-RV-C240	16.4			12/12/98																				
SS-RV-C241	15.2			12/12/98																				
SS-RV-C242	8.56			12/12/98																				
SS-RV-C243	7.11			12/12/98																				
SS-RV-C244	11.2	SS-RV-C524	5.86	12/12/98																				
SS-RV-C245	5.06			12/12/98																				
SS-RV-C246	17.8			12/12/98																				
SS-RV-C247	22.8			12/12/98						SS-RV-C294	18.5			2/20/99										
SS-RV-C248	5.46			12/12/98																				
SS-RV-C249	10.6			12/12/98																				
SS-RV-C250	12.0			12/12/98																				
SS-RV-C251	10.5			12/12/98																				
SS-RV-C252	11.9			12/12/98																				
SS-RV-C253	29.9			12/12/98					SS-RV-C283	21.6	SS-RV-C527	25.8	2/20/99	SS-RV-C311	24.7			5/8/99	SS-RV-C310	8.82			8/6/99	
SS-RV-C254	8.53			12/12/98																				
SS-RV-C255	13.7	SS-RV-C525	19.2	12/12/98					SS-RV-C284	27.7			2/20/99											
SS-RV-C256	19.5			12/12/98						SS-RV-C285	24.1	SS-RV-C528	18.7	2/20/99	SS-RV-C312	12.6	SS-RV-C529	11.4	5/8/99					
SS-RV-C257	15.5			12/12/98																				
SS-RV-C258	23.5			12/12/98						SS-RV-C286	8.97			2/20/99										
SS-RV-C259	16.6			12/12/98																				
SS-RV-C260	10.6			12/12/98																				
SS-RV-C261	8.43			12/12/98																				
SS-RV-C262	12.1			12/12/98																				
SS-RV-C263	6.13			12/12/98																				
SS-RV-C264	4.03	SSRV-C526	16.7	12/12/98																				
SS-RV-C265	5.97			12/12/98																				
SS-RV-C266	6.69			12/12/98																				
SS-RV-C267	5.96			12/12/98																				
SS-RV-C268	12.2			12/12/98																				
SS-RV-C269	5.24			12/12/98																				
Fiber Optic Line									SS-RV-FO-01	13.9			2/20/99											
									SS-RV-FO-02	35.3			2/20/99	SS-RV-FO-03	5.91			5/8/99						

mg/kg - milligrams per kilogram
Shaded values indicates value above calculated background

TABLE 5

**Agricultural Field Ditches Final Confirmation Soil Samples
River Valley Schools
Marion Ohio**

Final Confirmation Samples			Final Confirmation Samples			Final Confirmation Samples		
Sample ID	Arsenic Results (mg/kg)	Date Sampled	Sample ID	Arsenic Results (mg/kg)	Date Sampled	Sample ID	Arsenic Results (mg/kg)	Date Sampled
SS-RV-C001	7.9	1/22/98	IS-RV-C081	13.8	1/12/98	SS-RV-C231	14.3	12/21/98
SS-RV-C002	11.1	1/22/98	IS-RV-C082	15.6	1/12/98	SS-RV-C162	12.3	1/6/98
SS-RV-C003	13.7	1/22/98	IS-RV-C083	14.4	1/12/98	SS-RV-C163	6.52	1/6/98
SS-RV-C095	15.8	2/20/99	IS-RV-C084	11.7	1/12/98	SS-RV-C164	9.41	1/6/98
SS-RV-C215	7.4	12/6/98	IS-RV-C085	17.6	12/6/98	SS-RV-C165	7.77	1/6/98
SS-RV-C006	5.06	1/22/98	IS-RV-C270	8.05	12/1/98	SS-RV-C166	6.11	1/6/98
SS-RV-C007	7.88	1/22/98	IS-RV-C087	16.5	12/6/98	SS-RV-C22	15.1	12/21/98
SS-RV-C008	1.49	1/22/98	IS-RV-C287	7.77	2/20/99	SS-RV-C188	17.3	12/6/98
SS-RV-C216	16.7	12/6/98	IS-RV-C089	18.7	12/6/98	SS-RV-C169	10.4	1/6/98
SS-RV-C010	1.72	1/22/98	IS-RV-C090	15.4	12/6/98	SS-RV-C24	9.1	12/21/98
SS-RV-C011	16.0	1/22/98	IS-RV-C091	12.1	12/6/98	SS-RV-C25	14.3	12/21/98
SS-RV-C012	8.6	1/22/98	IS-RV-C092	8.51	12/6/98	SS-RV-C12	9.2	1/6/98
SS-RV-C013	8.3	1/22/98	IS-RV-C093	9.44	12/6/98	SS-RV-C13	10.3	1/6/98
SS-RV-C017	13.2	12/6/98	IS-RV-C094	6.59	12/6/98	SS-RV-C14	8.51	1/6/98
SS-RV-C015	16.4	1/22/98	IS-RV-C095	10.9	12/6/98	SS-RV-C26	11.7	5/8/99
SS-RV-C02	15.5	5/8/99	IS-RV-C096	17.3	12/6/98	SS-RV-C15	5.58	1/6/98
SS-RV-C017	14.7	1/22/98	IS-RV-C097	7.90	12/6/98	SS-RV-C17	8.28	1/6/98
SS-RV-C018	14.5	1/22/98	IS-RV-C098	5.77	12/6/98	SS-RV-C27	9.11	12/21/98
SS-RV-C019	1.21	1/22/98	IS-RV-C099	6.78	12/6/98	SS-RV-C19	6.25	1/6/98
SS-RV-C020	3.7	1/22/98	IS-RV-C100	3.91	12/6/98	SS-RV-C180	8.28	1/6/98
SS-RV-C021	5.27	1/22/98	IS-RV-C101	9.69	12/6/98	SS-RV-C11	16.3	1/6/98
SS-RV-C022	5.94	1/22/98	IS-RV-C102	3.97	12/6/98	SS-RV-C12	6.46	1/6/98
SS-RV-C023	2.0	1/22/98	IS-RV-C103	6.34	12/6/98	SS-RV-C13	5.66	1/6/98
SS-RV-C024	14.2	1/22/98	IS-RV-C104	4.91	12/6/98	SS-RV-C36	15.1	5/8/99
SS-RV-C025	10.8	1/22/98	IS-RV-C105	8.99	12/6/98	SS-RV-C15	8.13	1/6/98
SS-RV-C026	6.7	1/22/98	IS-RV-C106	15.1	12/6/98	SS-RV-C16	4.72	1/6/98
SS-RV-C027	5.1	1/22/98	IS-RV-C107	7.30	12/6/98	SS-RV-C17	16.3	1/6/98
SS-RV-C028	3.3	1/22/98	IS-RV-C108	15.1	12/6/98	SS-RV-C18	9.1	1/6/98
SS-RV-C014	1.27	12/6/98	IS-RV-C109	6.30	12/6/98	SS-RV-C19	8.15	1/6/98
SS-RV-C030	5.6	1/22/98	IS-RV-C110	9.56	12/6/98	SS-RV-C19	9.68	1/6/98
SS-RV-C031	5.0	1/22/98	IS-RV-C111	7.20	12/6/98	SS-RV-C151	9.58	1/6/98
SS-RV-C032	1.6	1/22/98	IS-RV-C112	8.06	12/6/98	SS-RV-C152	8.07	1/6/98
SS-RV-C033	4.7	1/22/98	IS-RV-C113	5.91	12/6/98	SS-RV-C31	12.3	2/20/99
SS-RV-C034	6.6	1/22/98	IS-RV-C114	5.35	12/6/98	SS-RV-C28	8.66	12/21/98
SS-RV-C097	1.0	2/20/99	IS-RV-C115	11.7	12/6/98	SS-RV-C15	11.1	1/6/98
SS-RV-C036	6.9	1/22/98	IS-RV-C116	3.93	12/6/98	SS-RV-C16	17.1	1/6/98
SS-RV-C037	0.9	1/22/98	IS-RV-C117	7.62	12/6/98	SS-RV-C157	18.3	1/6/98
SS-RV-C038	5.96	1/22/98	IS-RV-C118	14.1	12/6/98	SS-RV-C18	7.01	1/6/98
SS-RV-C039	1.0	1/22/98	IS-RV-C119	8.63	12/6/98	SS-RV-C37	13.3	5/8/99
SS-RV-C040	0.8	1/22/98	IS-RV-C120	5.35	12/6/98	SS-RV-C20	15.3	1/6/98
SS-RV-C041	0.9	1/22/98	IS-RV-C121	9.53	12/6/98	SS-RV-C21	9.11	1/6/98
SS-RV-C042	2.6	1/22/98	IS-RV-C122	5.64	12/6/98	SS-RV-C22	11.7	1/6/98
SS-RV-C043	3.8	1/22/98	IS-RV-C123	6.78	12/6/98	SS-RV-C23	16.3	1/6/98
SS-RV-C044	5.10	1/22/98	IS-RV-C124	4.45	12/6/98	SS-RV-C24	11.7	1/6/98
SS-RV-C045	6.5	1/22/98	IS-RV-C125	7.75	12/6/98	SS-RV-C25	9.88	1/6/98
SS-RV-C046	1.67	1/22/98	IS-RV-C126	10.8	12/6/98	SS-RV-C26	8.98	1/6/98
SS-RV-C047	1.00	1/22/98	IS-RV-C127	6.35	12/6/98	SS-RV-C27	9.28	1/6/98
SS-RV-C048	1.7	1/22/98	IS-RV-C128	8.20	12/6/98	SS-RV-C28	6.75	1/6/98
SS-RV-C049	4.5	1/22/98	IS-RV-C129	8.89	12/6/98	SS-RV-C29	11.3	1/6/98
SS-RV-C050	5.3	1/22/98	IS-RV-C130	5.68	12/6/98	SS-RV-C210	10.3	1/6/98
SS-RV-C003	9.4	5/8/99	IS-RV-C131	7.92	12/6/98	SS-RV-C211	7.07	1/6/98
SS-RV-C052	8.7	1/22/98	IS-RV-C132	7.39	12/6/98	SS-RV-C20	18.3	12/21/98
SS-RV-C053	1.84	1/22/98	IS-RV-C133	7.3	12/6/98	SS-RV-C21	7.2	12/21/98
SS-RV-C054	6.57	1/22/98	IS-RV-C134	9.25	12/6/98			
SS-RV-C055	1.81	1/22/98	IS-RV-C273	4.52	12/1/98			
SS-RV-C056	6.47	1/22/98	IS-RV-C136	8.44	12/6/98			
SS-RV-C057	1.61	1/22/98	IS-RV-C137	5.16	12/6/98			
SS-RV-C058	1.98	1/22/98	IS-RV-C138	8.05	12/6/98			
SS-RV-C059	5.5	1/22/98	IS-RV-C139	10.5	12/6/98			
SS-RV-C060	1.89	1/22/98	IS-RV-C140	8.24	12/6/98			
SS-RV-C061	6.64	1/22/98	IS-RV-C141	7.84	12/6/98			
SS-RV-C062	5.7	1/22/98	IS-RV-C142	8.58	12/6/98			
SS-RV-C063	7.38	1/22/98	IS-RV-C143	11.2	12/6/98			
SS-RV-C064	6.93	1/22/98	IS-RV-C144	9.99	12/6/98			
SS-RV-C065	7.4	1/22/98	IS-RV-C145	9.20	12/6/98			
SS-RV-C066	1.17	1/22/98	IS-RV-C146	11.4	12/6/98			
SS-RV-C004	1.2	5/8/99	IS-RV-C147	9.27	12/6/98			
SS-RV-C068	6.5	1/22/98	IS-RV-C148	6.40	12/6/98			
SS-RV-C069	1.21	1/22/98	IS-RV-C149	8.73	12/6/98			
SS-RV-C018	3.1	12/6/98	IS-RV-C150	10.0	12/6/98			
SS-RV-C071	3.5	1/22/98	IS-RV-C151	5.73	12/6/98			
SS-RV-C072	0.6	1/22/98	IS-RV-C152	8.33	12/6/98			
SS-RV-C000	7.3	2/20/99	IS-RV-C153	9.34	12/6/98			
SS-RV-C074	7.96	1/22/98	IS-RV-C154	11.7	12/6/98			
SS-RV-C075	6.27	1/22/98	IS-RV-C155	11.4	12/6/98			
SS-RV-C076	2.0	1/22/98	IS-RV-C156	8.06	12/6/98			
SS-RV-C077	2.4	1/22/98	IS-RV-C157	9.08	12/6/98			
SS-RV-C078	2.6	1/22/98	IS-RV-C158	9.90	12/6/98			
SS-RV-C079	4.3	1/22/98	IS-RV-C159	6.16	12/6/98			
SS-RV-C080	15.1	1/22/98	IS-RV-C160	16.5	12/6/98			

TABLE 6

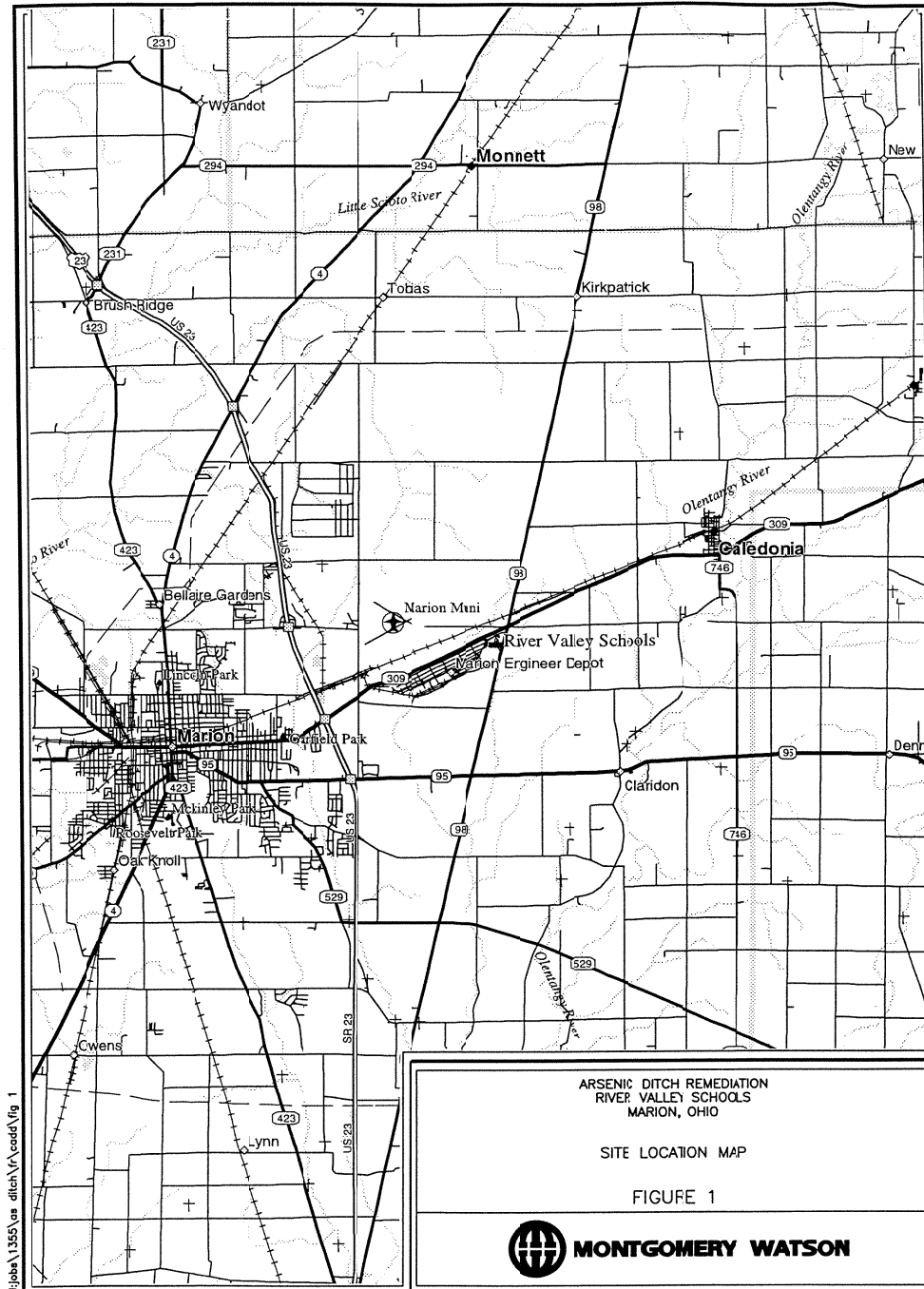
**East Ditch Final Confirmation Soil Samples
River Valley Schools
Marion, Ohio**

Final Confirmation Samples		
Sample ID	Arsenic Results (mg/kg)	Date Sampled
HIGHWAY 98		
SS-EV-C219	5.62	12/12/98
SS-EV-C220	10.3	12/12/98
SS-EV-C308	12.0	5/8/99
SS-EV-C222	5.04	12/12/98
SS-EV-C313	15.1	5/8/99
SS-EV-C224	11.9	12/12/98
SS-EV-C225	12.0	12/12/98
SS-EV-C226	11.3	12/12/98
SS-EV-C227	11.2	12/12/98
SS-EV-C228	5.69	12/12/98
SS-EV-C229	13.4	12/12/98
SS-EV-C230	16.9	12/12/98
SS-EV-C231	11.6	12/12/98
SS-EV-C232	5.79	12/12/98
SS-EV-C233	5.76	12/12/98
SS-EV-C234	13.6	12/12/98
SS-EV-C310	14.8	5/8/99
SS-EV-C236	5.14	12/12/98
SS-EV-C237	5.94	12/12/98
SS-EV-C238	7.71	12/12/98
SS-EV-C239	6.52	12/12/98
SS-EV-C240	16.4	12/12/98
SS-EV-C241	15.2	12/12/98
SS-EV-C242	5.56	12/12/98
SS-EV-C243	7.11	12/12/98
SS-EV-C244	11.2	12/12/98
SS-EV-C245	5.06	12/12/98
SS-EV-C246	17.8	12/12/98
SS-EV-C294	18.5	2/20/99
SS-EV-C248	5.46	12/12/98
SS-EV-C249	10.6	12/12/98
SS-EV-C250	12.0	12/12/98
SS-EV-C251	10.5	12/12/98
SS-EV-C252	11.9	12/12/98
SS-EV-C314	1.82	8/6/99
SS-EV-C254	1.53	12/12/98
SS-EV-C284	27.7	2/20/99
SS-EV-C312	12.6	5/8/99
SS-EV-C257	15.5	12/12/98
SS-EV-C286	1.97	2/20/99
SS-EV-C259	16.6	12/12/98
SS-EV-C260	0.6	12/12/98
SS-EV-C261	1.43	12/12/98
SS-EV-C262	12.1	12/12/98
SS-EV-C263	6.13	12/12/98
SS-EV-C264	2.03	12/12/98
SS-EV-C265	1.97	12/12/98
SS-EV-C266	6.69	12/12/98
SS-EV-C267	1.96	12/12/98
SS-EV-C268	12.2	12/12/98
SS-EV-C269	1.24	12/12/98
Fiber Optic Line:		
SS-EV-FO-01	13.9	2/20/99
SS-EV-FO-02	5.3	2/20/99
SS-EV-FO-03	1.91	5/8/99

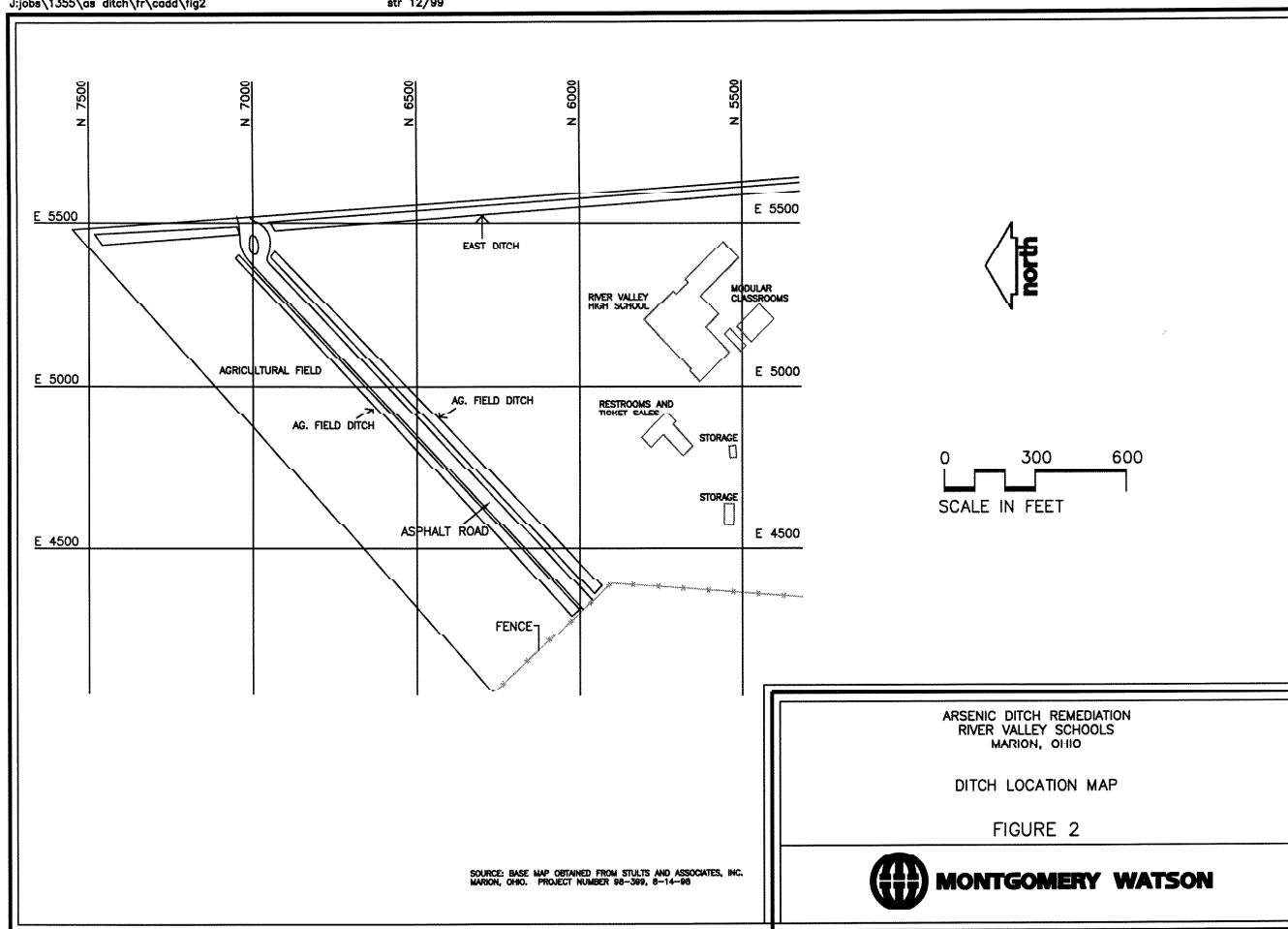
mg/kg - milligrams per kilogram
Shaded values indicates value above calculated background

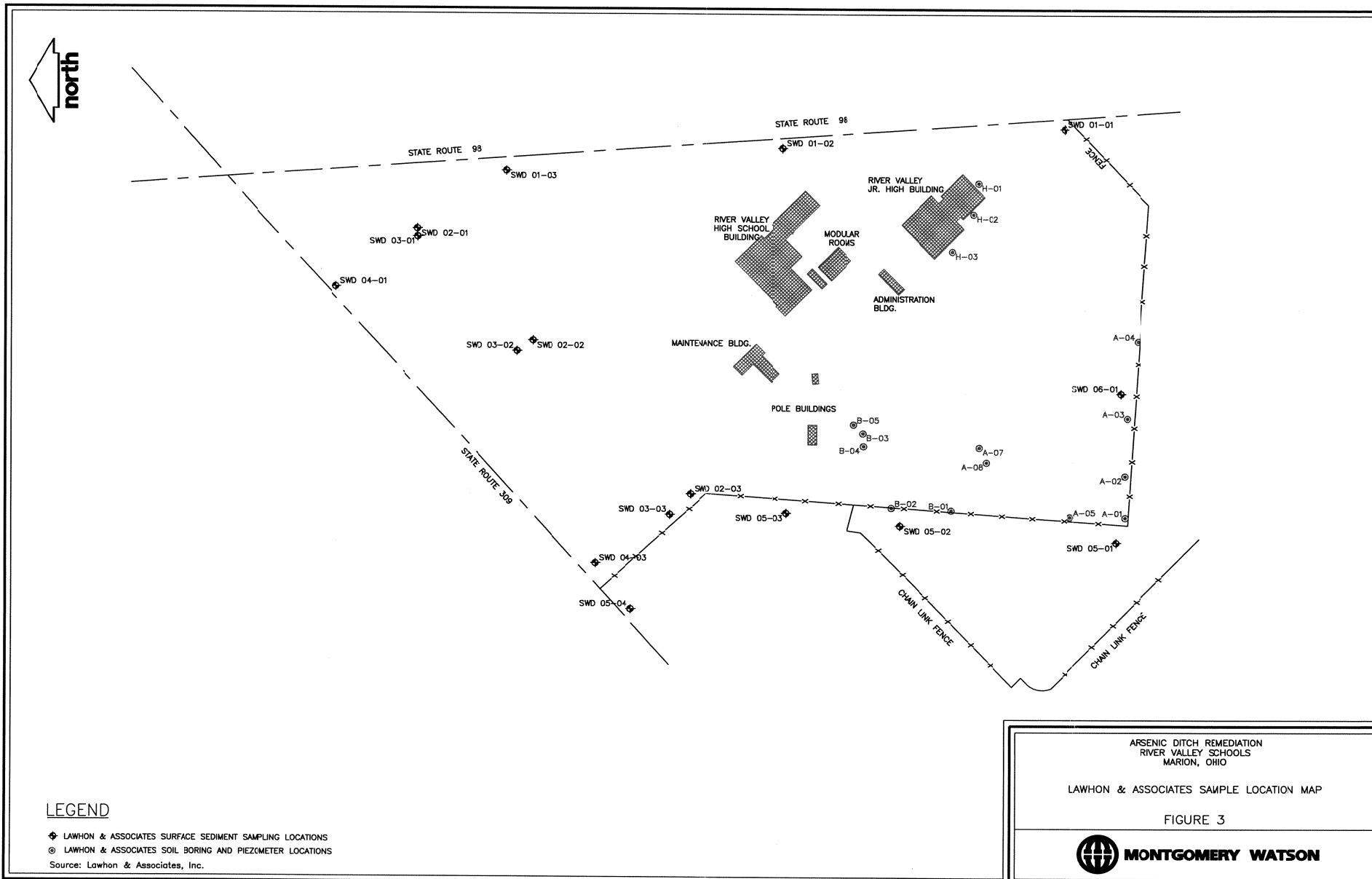
FIGURES

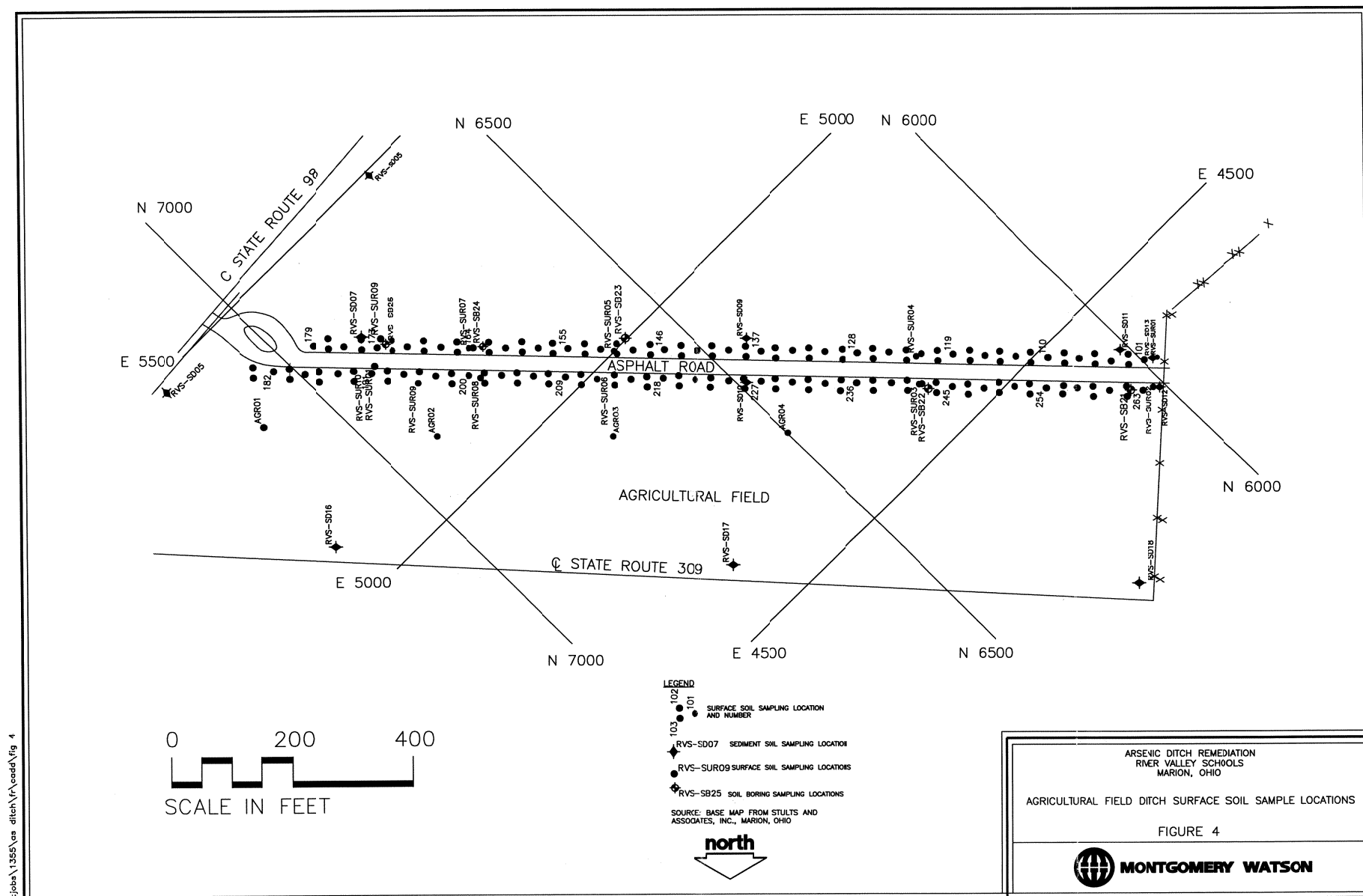
ARSENIC DITCH REMEDIATION CLOSURE REPORT

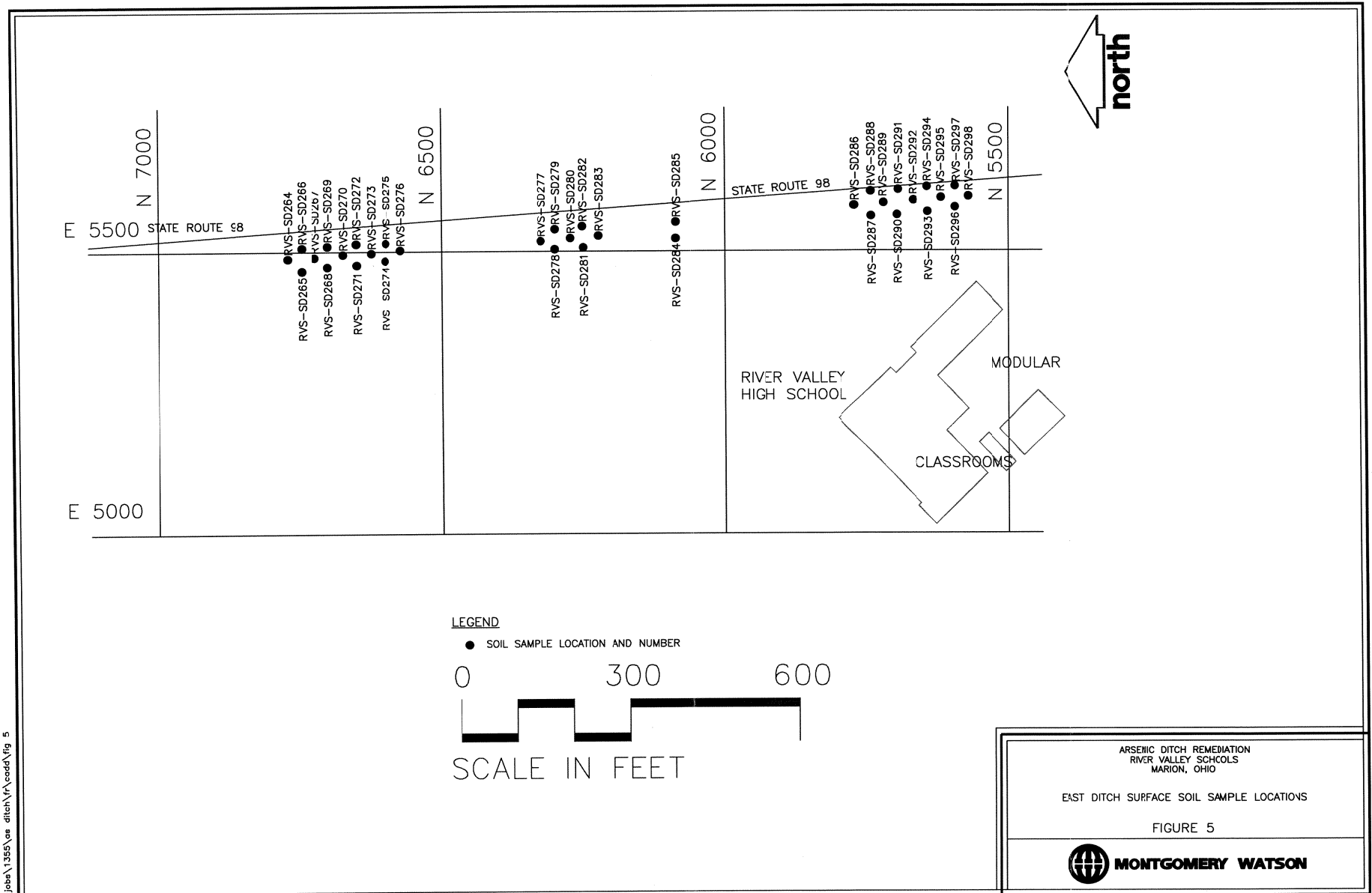


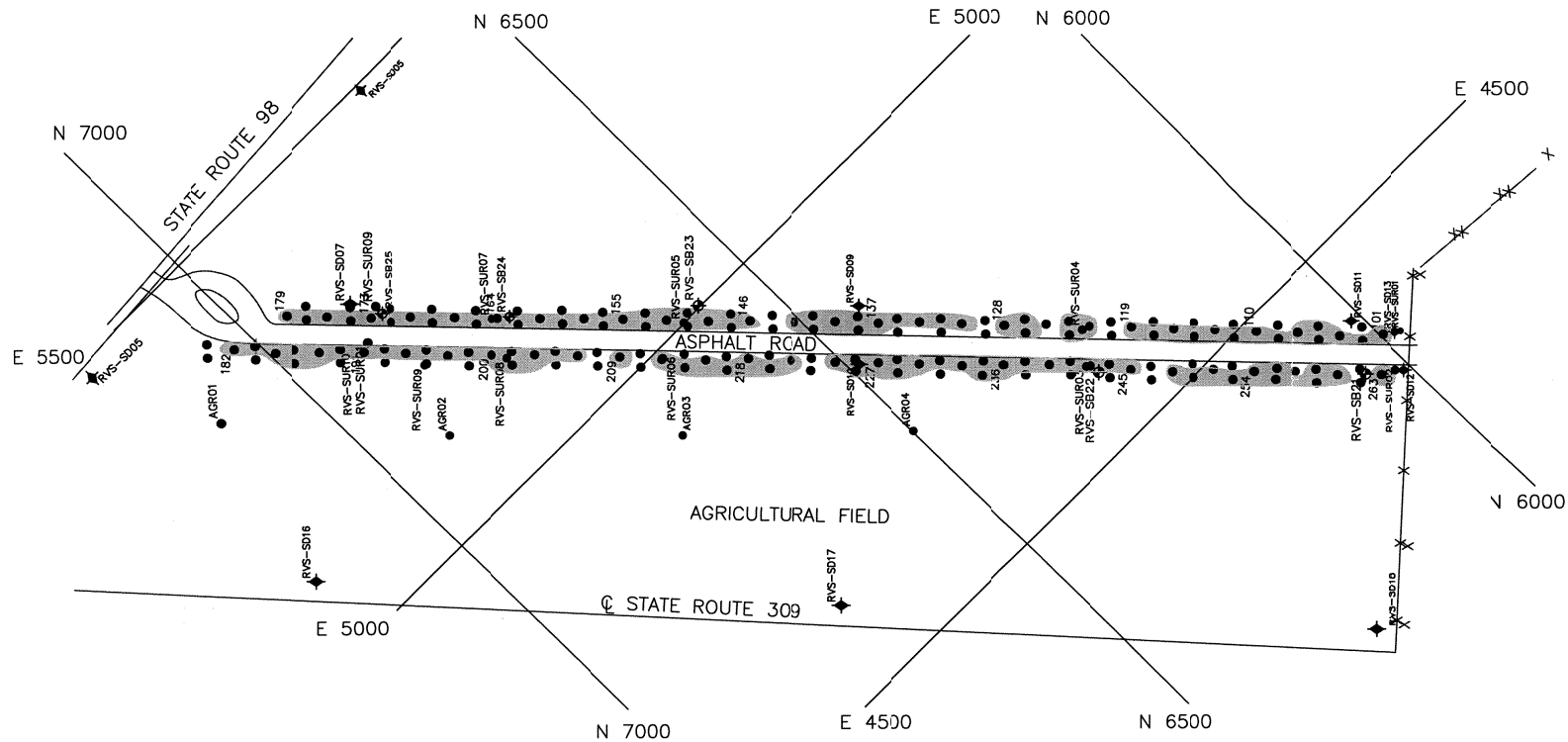
J:\jobs\1355\as ditch\fig\cadd\fig 1



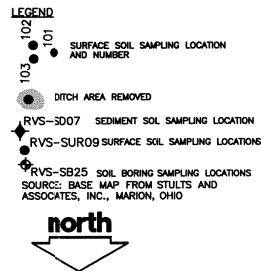








0 200 400
SCALE IN FEET

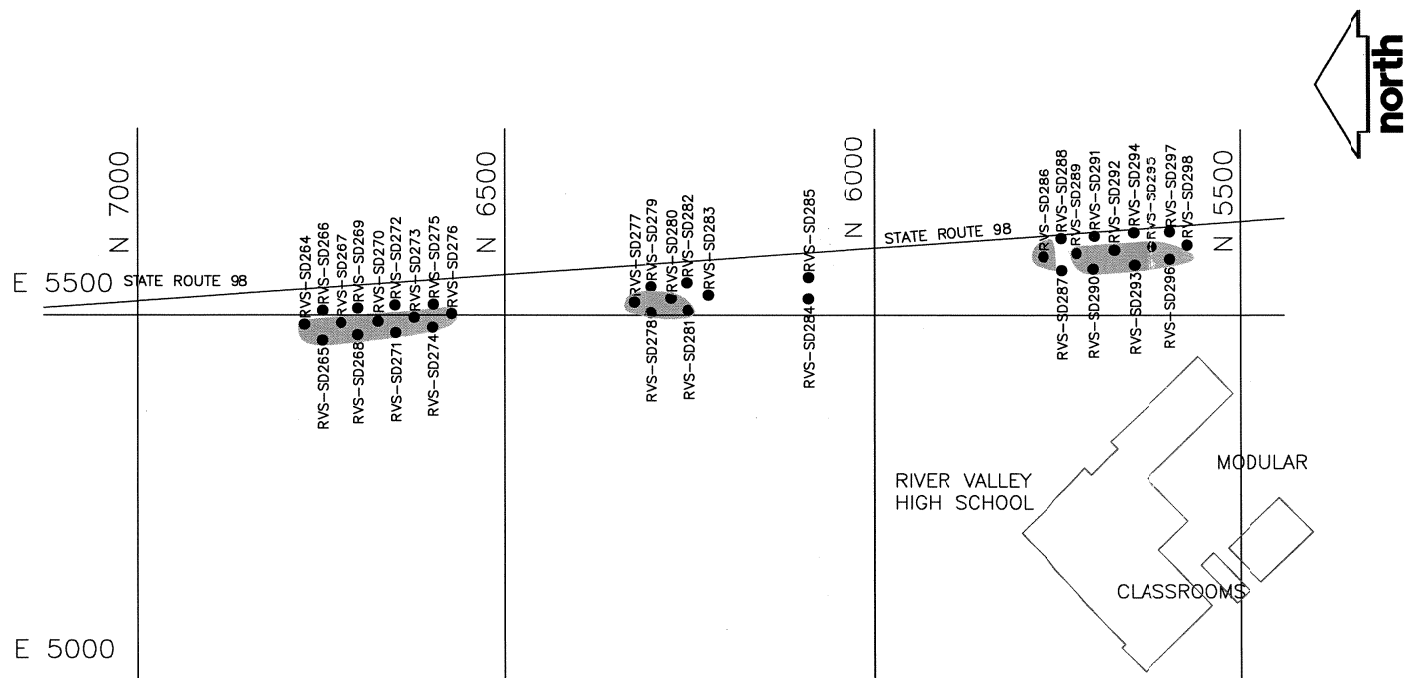


ARSENIC DITCH REMEDIATION
RIVER VALLEY SCHOLS
MARION, OHIO

AGRICULTURAL DITCH 1 SOILS PROPOSED FOR REMOVAL

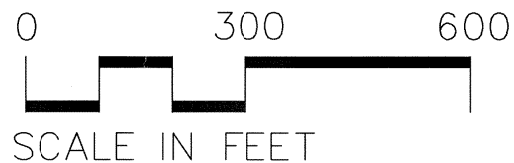
FIGURE 6





LEGEND

● AREA REMOVED



ARSENIC DITCH REMEDIATION
RIVER VALLEY SCHOOLS
MARION, OHIO

EAST DITCH SOILS PROPOSED FOR REMOVAL

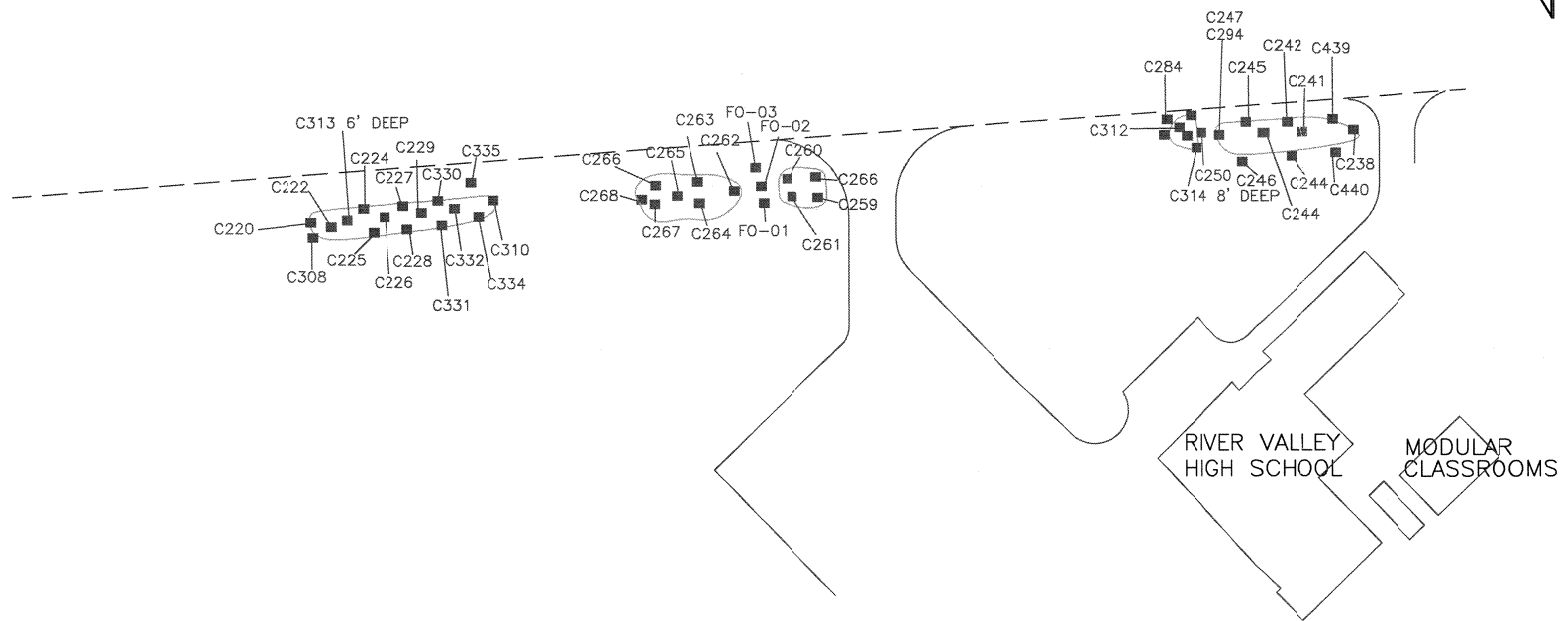
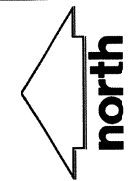
FIGURE 7



MONTGOMERY WATSON



MONTGOMERY WATSON

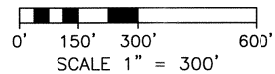


LEGEND

--- FIBER OPTIC LINE

--- EXCAVATION BOUNDARY

C308 ■ CONFIRMATION SAMPLE LOCATION AND NUMBER



ARSENIC DITCH REMEDIATION
RIVER VALLEY SCHOOLS
MARION, OHIO

FINAL EAST DITCH CONFIRMATION SAMPLE LOCATIONS

FIGURE 9



MONTGOMERY WATSON